How to Buy

Air Conditioning

AIR CONDITIONING MUST DO 5 JOBS, SIMULTANEOUSLY

Air conditioning has been defined by competent authorities as "the simultaneous control of temperature, humidity, cleanliness, ventilation and circulation of air within an enclosure." Complete air conditioning therefore must include all of these functions.

1. Maintain Comfortable Temperatures

For heating, the generally accepted comfort temperature is about 70° Fahrenheit, modified occasionally by special conditions. For cooling, there is no set figure, but authorities have agreed that it should be from 10° to 15° below outside temperatures. This difference is, in most localities, ample for comfort conditions . . . a greater temperature drop being generally considered inadvisable and uneconomical.

2. Maintain healthful humidity

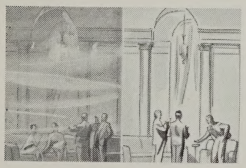
Humidity is measured by a relative figure . . . the proportion of moisture, to the total weight of moisture which the air in the room can hold. This relative amount varies as the temperature rises or falls. The accepted figure for year 'round comfort and protection to health and property is from 40% to 60%. Too high a humidity is depressing . . . while too low, makes the air too dry for body comfort.

3. Keep the air CLEAN

For health, comfort and to protect property, air should be kept clean. A properly designed air conditioning system removes foreign matter, either by mechanical filters or washed air methods. If you are considering the purchase of air conditioning, look carefully into the cleaning methods of any system you are contemplating.

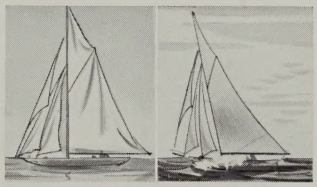
4. Provide adequate VENTILATION

Good ventilation removes air that is laden with odors, tobacco, smoke, etc., and replaces it with outside air. Careful balancing of the relative amounts of outside air with recirculated air is essential for completely satisfactory results, as well as for economical operation. Especial care must be taken to have ducts of adequate size, inlets and outlets properly placed, and fans or blowers large enough to handle the load.



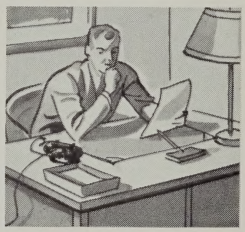
5. Provide proper air CIRCULATION

Proper circulation methods avoid hot or cold spots, drafts, or warm blasts. It is obtained by skillful location of inlets and outlets, by having fans or blowers of the right capacity, and by carefully regulating the volume and speed of the entering air. Good circulation requires extreme care in design, because apparently unimportant elements in room architecture may cause serious interference with circulation.



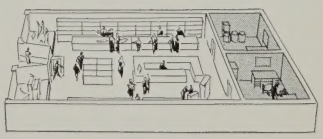
Different Types of "Occupancy" Require Different Treatments

Every air conditioning installation should be carefully fitted to the requirements. Restaurants, for instance, with food odors and tobacco smoke, require more air changes than offices or stores. Temperatures in rooms where occupants are comparatively quiet, such as offices, can be higher, and still be comfortable, than in other places where the occupants are in action. In stores, care must be taken not to subject customers to "shock" when entering or leaving, even though temperatures may not be exactly suited to employes. Theatres must not be so cold in summer as to cause discomfort to patrons when entering or leaving, or during the performance. Only skilled engineering and careful attention to these factors will solve these problems to your complete satisfaction.



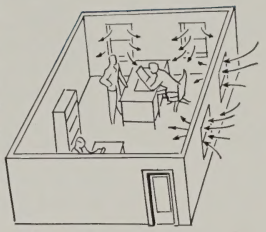
The Space to be AIR-CONDITIONED

Be sure there is a clear understanding of just what is to be accomplished by your air conditioning system. Mistakes are sometimes difficult to rectify . . . and wrong information on this point may affect the entire design of the system. And, if you are contemplating expansion of the system in the future, be sure the seller understands this, too, so that he can plan accordingly.



Amount of Load Determines Size and Type of System

The heating and cooling requirements must be accurately calculated to determine the type of system and its size. For heating, this is relatively simple, as usually the greater part of the load is that caused by lower outside temperatures. Character of construction, insulation of walls, number and exposure of windows, all affect the heating load.



Cooling Loads More Complicated

For cooling, other factors than outside temperature count heavily. "Body" load is important . . . that is the amount of heat given off by persons occupying the room, which varies according to their

occupations. Lights, cooking appliances, motors, exposure of the room, type of window shades or awnings, etc., all influence the total load. Be sure the designing engineers are familiar with every factor, and that the final loads are correctly estimated.

What is the Right Type of System for Your Individual Problem

This can be answered only by a complete analysis of your problem. The following factors, however, must be given careful consideration, if you are to enjoy complete and lasting satisfaction with your air conditioning installations:

Nature of your business
Type of occupancy
Architectural design
Length of lease
Appearance of installation
Shape of premises
Method of control
Space available for equipment
Size of load
First cost
Operating cost
Maintenance cost
Salvage value

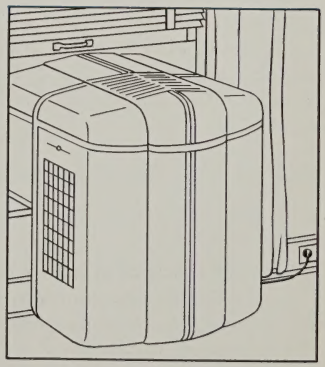
All of these are important. Which should be given the most consideration is an individual problem with each buyer. Therefore, it is essential for you to state just which of these factors are most important, and why.

Three General Types of Systems

Most air conditioning systems can be classified into three general types, depending primarily upon the location of the heating and cooling units, and the method of delivering conditioned air to the room.

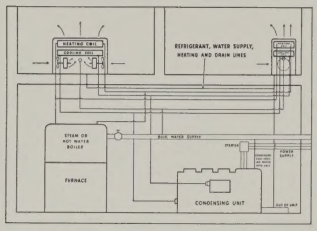
1. Self-contained Summer Air Conditioners

Complete assembly of this unit for summer air conditioning purposes only is contained in a single cabinet. Air enters through grilles or louvers, passes through a filter for cleaning. A fan drives it over a coil which is cooled by a refrigeration unit, also within the cabinet. The coil cools the air, dehumidifies it, and then it is exhausted through another grille, to be circulated throughout the room. An outside air intake and a means to exhaust foul air may or may not be provided.



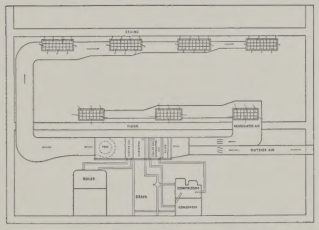
2. Individual air conditioning units with remote heating and cooling supply

Air conditioning cabinets placed in the room contain separate coils for heating and cooling. Steam or water for heating, refrigerant for cooling, is delivered from a remote boiler or condensing unit, to the correct coil. Air entering the cabinet is filtered, humidified by passing through a water spray, or dehumidified by passing over the coil, after which it is fan-driven into the room. One or more air conditioning units may be operated from the same remote heating or cooling unit.



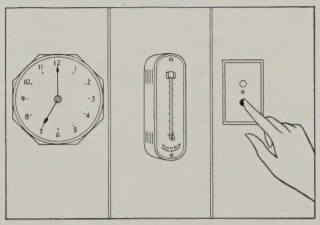
3. Central systems with ducts

In this system the air (usually a mixture of outside and recirculated air) is heated or cooled, humidity added or extracted, and the air cleaned, at a central point. This conditioned air is then driven by blowers through ducts to the rooms to be treated. It ventilates and circulates, and returns to the central point, where fresh air is added as necessary.



Method of control

Control of air conditioning systems can be manual, partly automatic, or fully automatic. Many installations are started by hand or a time clock in the morning, after which thermostats stop and start the equipment during the day. The buyer may usually select any type of controls which he desires, depending upon conditions. Where ventilation is essential, regardless of tempera-



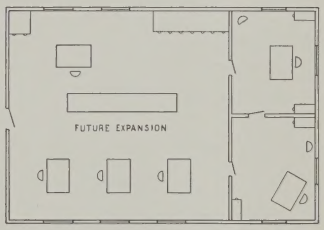
tures, blowers and fans are usually manually controlled, being installed so as to operate independently of the heating or cooling equipment.

Cost of operation

No rule of thumb method can be applied to cost of operation. Many factors control it, such as cost of electricity, water and fuel, type of system, efficiency of operating units. The main essential is to select equipment with an established reputation for economy, not only in first cost, but in freedom from excessive service or maintenance. Operation, service and maintenance costs should be combined with first cost to give a true picture of the complete cost of air conditioning.

Possibilities of expansion

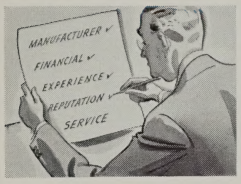
Many buyers start by air conditioning just a part of the premises, then expand facilities as conditions warrant. This is especially true of summer air conditioning. Most systems can be designed with this possibility in mind, but it is essential for the owner to mention this possibility, as it may radically affect the design and equipment selected.



Suited to local conditions

Specific local conditions should always be considered. If the air is particularly dirty or smoky, special cleaning equipment may be needed. Humidity conditions may be unusual. Habits of local people may need to be met. The competent engineer who is best informed on local conditions is usually most capable of designing a system which will deliver the best results.

Responsibility of Manufacturer and of Local Organization



When you start buying air conditioning, look well into the reputation of the manufacturer and the local organization. Satisfy yourself that the manufacturing organization is experienced in designing and building air conditioning equipment, and is both capable and willing to stand back of its products.

Be sure also that designing engineers are competent, installation men capable, and that all the terms of the contract will be carried out. It is generally best to select a local supplier, who knows local sources of supply, local building codes and requirements, and employs local labor.

Local Maintenance Facilities

Air conditioning, especially summer cooling, depends to a great extent upon mechanical equipment, which may need occasional adjustments. Be sure that local maintenance and service facilities are capable, and are quickly available. To depend upon distant sources of labor, supervision and materials is risky . . . for while an adjustment may be simple and take only a few minutes, you may have to wait considerable time for a maintenance man to reach you . . . and you may be without air conditioning when you need it most. Remember, you should have "service as close as your telephone."

Guarantees of Equipment and Performance

Be sure you understand fully what your guarantees include, both as to equipment, service and performance. Vague and loosely

worded statements are liable to misinterpretation or misunderstanding. You are entitled to a reasonable warranty on materials and labor for your original installation, and on the results it will deliver.

Comparing the Price

We have previously mentioned that cost figures should include not only the first cost of the equipment, but also its operation and maintenance cost. Salvage value also should be looked into, especially if you may be compelled to change your location. Above all, look into the life-expectancy of mechanical equipment . . . how fast or how slowly you should charge it off, what its depreciation will be.

All these are just as important to you as the first cost, for only when they are all taken into consideration can you estimate the value of your air conditioning investment. It usually costs no more to buy from an established manufacturer, through a reputable local organization . . . and then you can be assured that you will have adequate protection for the money you have expended.

Users Know That Comfort is Profit . . . and that Westinghouse Air Conditioning is "Proved for Profit"

There are many good, *sound* reasons why Westinghouse Air Conditioning pays:

(1) Increased profit through—
- . . . more and larger sales
- . . . more new customers
- . . . old customers retained
- . . . customer good will
- . . . reputation for progressiveness

(2) Increased employe efficiency producing—
- . . . greater selling effectiveness
- . . . greater accuracy
- . . . ability to work better, longer

(3) Increased cleanliness, producing—
- . . . fresher merchandise
- . . . reduced necessity for markdowns
- . . . reduced cleaning expense
- . . . less frequent redecorating

(4) Better health conditions, producing—
- . . . less lost time due to illness
- . . . improved employe morale
- . . . improved employe relations

There are 3 Essentials

To get all of these Proved-for-Profit benefits, at minimum investment and operating cost, you must get these three essentials:

—all within a single UNDIVIDED RESPONSIBILITY. Your local organization equipped in engineering knowledge and experience to provide this specialized service, is your Westinghouse Authorized Air Conditioning Engineering Contractor.

The Importance of MATCHED Equipment

Every air-conditioning system contains at least five essential units. Each must perform certain definite functions as a part of the operating system.

Upon how accurately these units are interrelated, depends the effectiveness of the system, its cost of operation—your satisfaction with results.

Consider, therefore, these vital facts about Westinghouse *Matched* Equipment:

1. Every unit engineered by Westinghouse.

2. Each unit *matched* in capacity and performance to operate with all other units, in a *unified* system.

3. Ample variety of sizes and matched capacities to provide complete systems that meet specific requirements.

4. Needless expense of superfluous power, avoided.

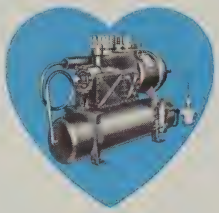
5. Underpowering that falters under peak loads, avoided.

6. Mechanical excellence controlled and backed by Westinghouse—"the name that means everything in electricity."

Westinghouse MATCHED Air Conditioning Equipment

●

WESTINGHOUSE SEAL-LESS CONDENSERS



The condensing unit is the heart of the air-conditioning system. It condenses the refrigerant, starts it on the cooling cycle.

Westinghouse Seal-Less Condensers are engineered by the same men who developed the famous Westinghouse Hermetically-sealed domestic refrigerator units which have given many years of trouble-free service to many thousands of users.

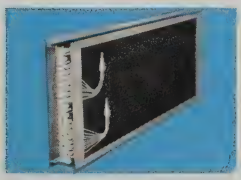
Features of importance to you:

. . . *permanently sealed* against dust, dirt, moisture.
. . . *direct drive*—no shaft seals.
. . . *light weight*—no special foundations needed.
. . . *compact*—uses minimum floor space.
. . . *quiet*—no noise nuisance.
. . . *10 sizes*—to fit your specific needs.

PROVED IN SERVICE

In actual service, and in punishing laboratory tests, Westinghouse Seal-less Condensers have proved their fitness. One unit, for example, has been on a 3-year continuous running test (the equivalent of 15 years normal service) without the replacement of a single part.

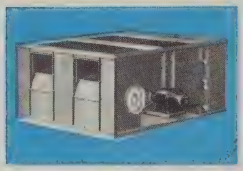
WESTINGHOUSE SURFACES



Next point in the cooling cycle is the evaporating coil or "surface." Here the liquified refrigerant expands to produce cold which removes heat and excess humidity from the air.

Westinghouse surfaces are available both for cooling and heating, in sizes and types to match all equipment in each specific system.

WESTINGHOUSE AIR CONDITIONING UNITS



This unit filters the cooled, dehumidified air, supplies the pressure to distribute it throughout the air-conditioned space.

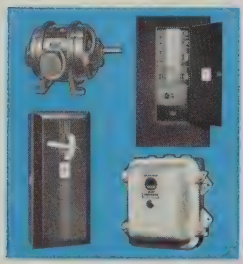
Westinghouse Air-Conditioning Units are built in a total of 30 different sizes and styles. They are engineered and matched for every size of system, and to fit any building characteristics.

WESTINGHOUSE EVAPORATIVE CONDENSERS

In communities where water is too costly, or its use for air conditioning restricted, means must be provided to cut down condensing water consumption and use it over and over again.

In the Westinghouse Aquamizer, this need has been fully met. Savings in condensing water up to 98% are accomplished. Naturally, there are sizes to match every Westinghouse Air Conditioning System.

WESTINGHOUSE ELECTRICAL EQUIPMENT

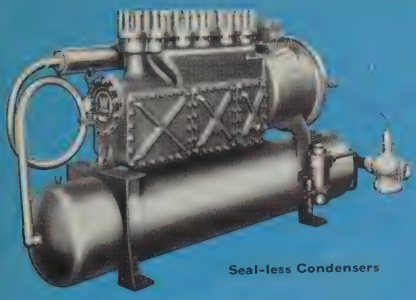


An air-conditioning system is an *electrical* system. It employs electric motors, linestarters, controls, switches, conduits, etc.

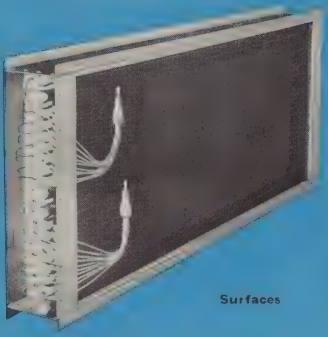
All of the electrical equipment employed in a Westinghouse System is *Westinghouse* Equipment—matched to perform every important function correctly, in unity with all other Westinghouse Units.

Thus—it is evident—the Westinghouse Air-Conditioning System is *in fact,* a complete SYSTEM—not merely an assembly of units and equipment whose capacities and ratings may be in only approximate balance.

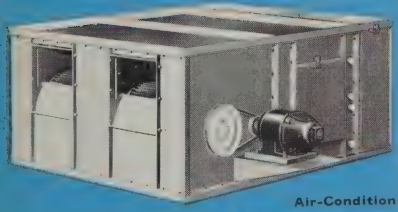
WESTINGHOUSE MATCHED EQUIPMENT



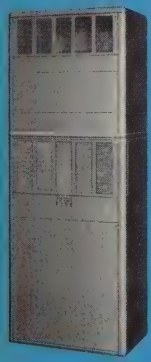
Seal-less Condensers



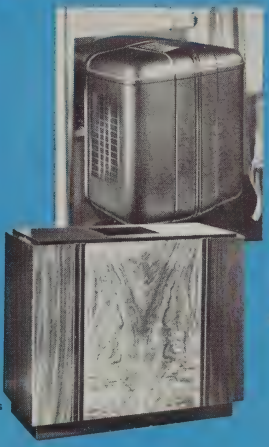
Surfaces



Air-Conditioning Units

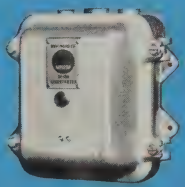


Self-Contained Units

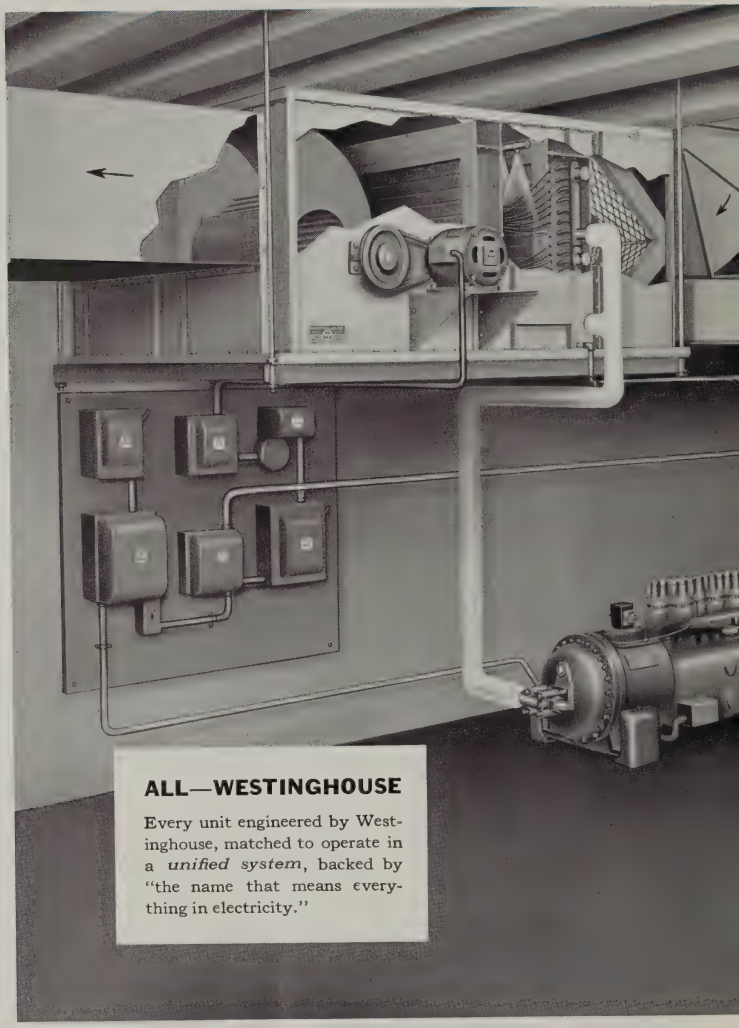


Evaporative Condensers

Electrical Equipment



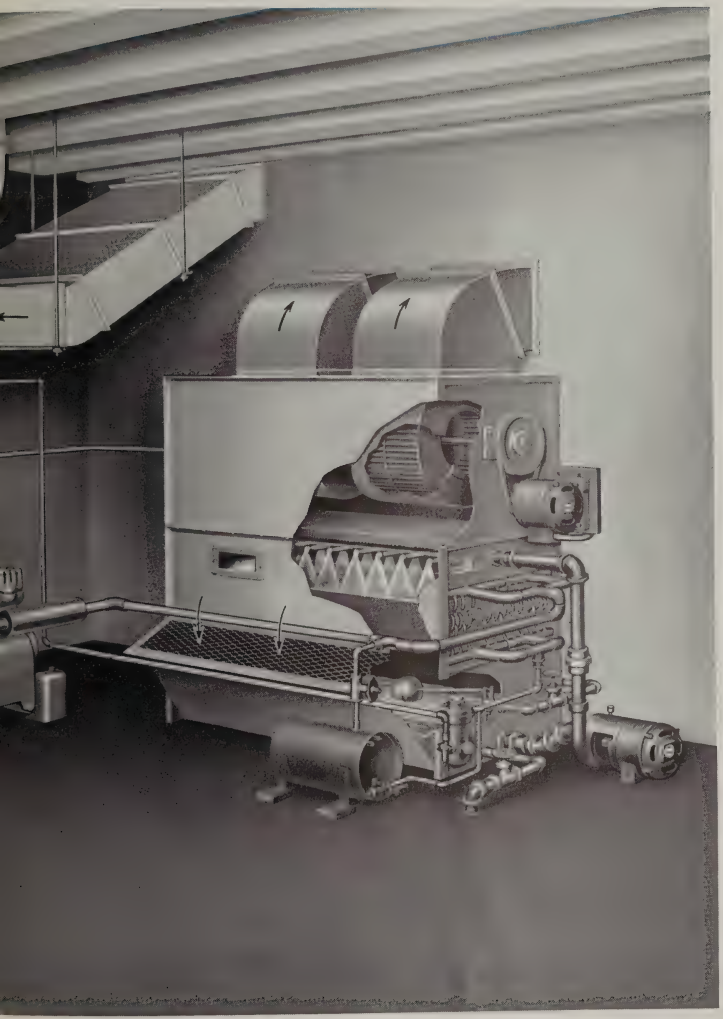
Westinghouse matched Equipment



ALL—WESTINGHOUSE

Every unit engineered by Westinghouse, matched to operate in a *unified system*, backed by "the name that means everything in electricity."

. . . in a Unified System



Experienced and Responsible Local Engineering Contractors design and install Westinghouse Matched Systems.

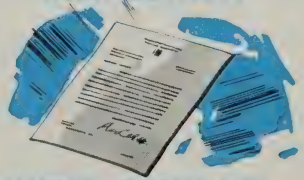
Look for this emblem when you buy air conditioning. It is your assurance of the knowledge, skill and experience necessary to give you a correct system, backed by UNDIVIDED RESPONSIBILITY for your complete satisfaction.

SURVEY

DESIGN

PROPOSAL

INSTALLATION



PERIODIC SERVICE—UNDER CONTRACT

The Safeguards of your Investment in Westinghouse Air Conditioning

You buy a *known quantity*—when you choose Westinghouse Air Conditioning. You know Westinghouse—"the name that means everything in electricity." That name backs all of the matched equipment.

You know your Westinghouse Engineering Contractor, the organization Westinghouse has chosen and authorized to design, engineer and service the complete Westinghouse system.

When you invest, you will want all three of these air conditioning essentials—within a single *undivided responsibility*:—

1. Westinghouse Matched Equipment

Every unit engineered by Westinghouse—*matched* in capacity and performance to operate in a *unified system*.

2. Engineered Installation

First, a thorough survey of specific requirements and peculiarities of the job. Second, an engineered plan to fit. Finally—installation that is expert, correct, economical, prompt, neat and compact.

3. Responsible Maintenance Service

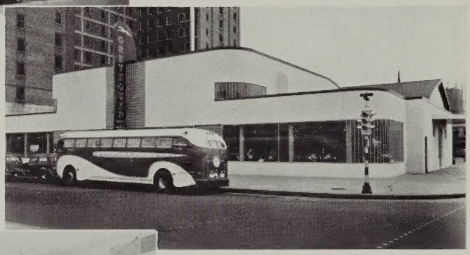
Continuous, efficient operation further assured by maintenance service under contract, providing periodic inspection and adjustment, for the protection of the owner's investment and his resulting benefits.

Proved-for-Profit

One of many Westinghouse Air-Conditioned Paramount Theatres.

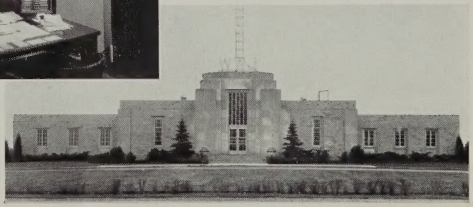
The businesses pictured and named on these two pages, installed Westinghouse Air Conditioning because of its profit-building potentiality.

If you are interested in air conditioning for comfort and profit, your Westinghouse Engineering Contractor will gladly consult with you.



Greyhound Bus Terminal, New Orleans.

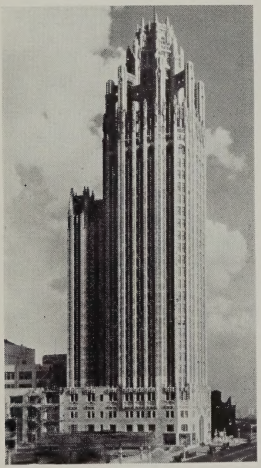
World's No. 1 Rotary Club, Chicago.



W W J Broadcasting Station, Detroit.

Huyler's Restaurant, Chicago.

Lerner Shops, Kansas City. One of a Westinghouse Air-Conditioned chain.



Tribune Tower, Chicago.

Fanny Farmer Candy Shop.

Kresge Store, Springfield, Ill.

WESTINGHOUSE AIR CONDITIONING

—backed by "the name that means everything in electricity"

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